

O'BRIEN
Serial No. 10/052,108

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IN THE CLAIMS:

u Please cancel without prejudice claims 1-9 and enter newly written claims 12-25 as follows.

u 1-11. (Cancelled)

c 12. (New) A method of preserving synchronization of ATM cells in an ATM cell transmission system, the ATM cells each including a header and payload, the method including the steps of encoding the header and payload and interleaving the encoded header and payload with synchronization data within a transmission frame.

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c 13. (New) A method of preserving and reacquiring synchronization of ATM cells in an ATM cell transmission system, the ATM cells each including a header and payload, the method including the steps of encoding the header and payload and interleaving the encoded header and payload with synchronization data within a transmission frame.

c 14. (New) A method of reacquiring synchronization of ATM cells in an ATM cell transmission system, the ATM cells each including a header and payload, the method including the steps of encoding the header and payload and interleaving the encoded header and payload with synchronization data within a transmission frame.

c 15. (New) A method as claimed in any of claims 12, 13 or 14 wherein error correction is applied separately to the header and payload prior to framing them in the transmission frame.

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C 16. (New) A method as claimed in claim 15 wherein the error corrections corresponds to Reed Solomon forward error correction.

C 17. (New) A method as claimed in claim 16 wherein the Reed Solomon encoding is applied to the header and payload separately following which the encoded header is interleaved with the synchronization data and encoded payload.

C 18. (New) A method as claimed in any of claims 12, 13 or 14 wherein the synchronization data corresponds to a synchronization word selected to have low auto and cross-correlation characteristics.

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C 19. (New) A method as claimed in any of claims 12, 13 or 14 including the further step of eliminating empty ATM cells in such a way that input and output data rates of an ATM link over which the processed ATM cells are transmitted, are substantially matched.

C 20. (New) A method as claimed in any of claims 12, 13 or 14 wherein there are at least some idle ATM cells and including the further step of using idle ATM cells in such a way that input and output data rates of an ATM link over which the processed ATM cells are transmitted, are substantially matched.

C 21. (New) A method of preserving synchronization of ATM cells in an ATM cell transmission system, comprising the steps of:

at a first location, for a plurality of transmission frames each containing an encoded ATM cell, interleaving synchronization data within said frames, prior to transmission via an ATM transmission link;

transmitting the plurality of processed frames via a transmission link;

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receiving, at a second location, the framed ATM cells;
de-interleaving the received frames in order to extract the synchronization data; and
monitoring the synchronization data and depending on whether a predetermined
number of incorrect/correct synchronization data elements are detected, establishing
synchronization, triggering resynchronization or triggering attempted reacquisition of
synchronization.

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22. (New) A method of preserving and reacquiring synchronization of ATM cells in
an ATM cell transmission system, comprising the steps of:

at a first location, for a plurality of transmission frames each containing an encoded
ATM cell, interleaving synchronization data within said frames, prior to transmission via an
ATM transmission link;

transmitting the plurality of processed frames via transmission link;
receiving, at a second location, the framed ATM cells;
de-interleaving the received frames in order to extract the synchronization data; and
monitoring the synchronization data and depending on whether a predetermined
number of incorrect/correct synchronization data elements are detected, establishing
synchronization, triggering resynchronization or triggering attempted reacquisition of
synchronization.

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23. (New) A method of reacquiring synchronization of ATM cells in an ATM cell
transmission system, comprising the steps of:

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at a first location, for a plurality of transmission frames each containing an encoded ATM cell, interleaving synchronization data within said frames, prior to transmission via an ATM transmission link;

transmitting the plurality of processed frames via a transmission link;

receiving, at a second location, the framed ATM cells;

de-interleaving the received frames in order to extract the synchronization data; and

monitoring the synchronization data and depending on whether a predetermined number of incorrect/correct synchronization data elements are detected, establishing synchronization, triggering resynchronization or triggering attempted reacquisition of synchronization.

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C 24. (New) A method as claimed in any of claims 12, 13, 14, 20, 21 or 22 wherein the synchronization data is interleaved throughout the ATM cell in such a way as to render the ATM cell substantially insensitive to interference targeted at cell boundaries.

C 25. (New) An apparatus for manipulating ATM cells in an ATM transmission system adapted to operate in accordance with the method of any of claims 12, 13, 14, 20, 21 or 22.

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